

XLVIII.—*Supplemental Note on a Double-rooted Tooth from the Purbeck Beds in the British Museum.* By H. G. SEELEY, F.R.S.

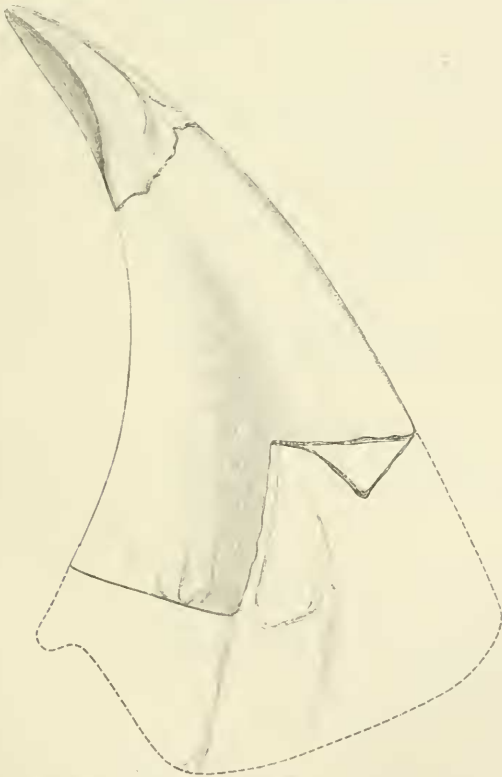
IN describing this specimen no reference was made to the possible resemblance of the tooth to the canine teeth of Mammals. The division of the root, and the absence from the margins of the crown of the serrations, seen in well-preserved teeth of *Nuthetes*, not unnaturally raised the question whether the tooth may not be mammalian; in which case its interest would be increased, since no example of such a structure has been figured, though it is affirmed to exist in the Jurassic Mammals of this country and America. Such doubts have already arisen; and Mr. Arthur Smith Woodward, F.L.S., has mentioned to me his belief that the tooth is a mammalian canine, and ought therefore to be removed from the series of teeth of *Nuthetes*. I have gone over the evidence with Mr. Smith Woodward, and give the results.

First, examples of the teeth of *Nuthetes* occur which have lost the serrations of the crown. Secondly, a tooth of *Nuthetes*, of which only a small portion of the crown is preserved, shows an impression which is so like a divided root, that it closely approximates the condition of the fossil which I figured. Other teeth of *Nuthetes* have the root vertically furrowed, and it sometimes happens that there is a distinct pit of some size at the base of the crown; so that with close correspondence of the shape of the crown of the figured tooth in question to certain undoubted teeth of *Nuthetes*, the modification is not a remarkable one which would give a divided root as an abnormal condition; and though the evidence is small in amount, it arrests attention.

On the other hand, the crown of the tooth has some resemblance to the crown of a canine of one of the small mammals from the Purbeck beds; and the comparison has this advantage that those teeth show no trace of serrations upon their lateral margins. Secondly, Professor Marsh (Amer. Journ. Sci., April 1887, vol. xxxiii. pls. 9 & 10) has affirmed the divided condition of the roots of the canines in the allied American genera, as a common character. It is difficult, in the absence of specimens, to determine what importance to attach to these observations, since no example of a divided root, so far as I remember, has been figured. It is stated that in the Dryolestidæ the canine is inserted by two roots *more or less distinct*. *Laodon* in this family is mentioned as having two roots to the canine. In the Diplo-

cynodontidæ the canine is said to have two roots, and the character is recognized in the genera *Diplocynodon*, *Docodon*, *Euneodon*; and in the Spalacotheridæ *Menacodon* is said to have two roots to the canine. In all these forms no further evidence is available from Professor Marsh's figures of a divided root, than the appearance of division at the base of the crown.

Professor Osborn has also affirmed the division of the root of the canine in an English genus, of which examples are preserved in the British Museum. First, with regard to the genus *Kurtodon* the side of the tooth is stated to show "a faint median groove which may indicate a double fang"



Maxillary canine of *Triconodon ferox*. Enlarged 10 times.

[root]. Secondly, there is a portion of the jaw of *Triconodon ferox*, which Professor Osborn describes, and he states that it shows "as an important character the bifanged upper

canine," and it is subsequently added that the canine is "a powerful tooth implanted by two stout fangs." The tooth as figured (Journ. Acad. Nat. Sci. Philad. 2nd ser. vol. ix. pl. ix. fig. 4) does not bear out the alleged double-rooted character. I have accordingly made an enlarged drawing of this tooth, so as to compare with the tooth of *Nuthetes*. It is exposed on the inner side; the crown is enamelled at its summit, with ridges and a slight cinguloid thickening at the base of the enamel; the extremity of the root of the tooth is lost. I have no doubt it is channelled in the way Professor Osborn's figure indicates; but, from the impression left where the anterior angle of the root is lost, which appears to be that of the external surface of the jaw, I cannot regard it as better evidence of a divided root for that particular tooth, than the corresponding impression of a tooth of *Nuthetes*, already referred to, would give for division of the roots in that specimen. There is a similar pit to that figured by Owen in *Nuthetes* apparently, on the external side, and a compression of the part of the root beyond it. In any case the evidence is not conclusive that the root was divided in this tooth of *Triconodon ferox*, which is the only example available for examination in this country. If the fossil gave such evidence, then the roots indicated would be dissimilar in form to those figured in the fossil tooth in the British Museum, No. 48,208. It is possible that a nearer comparison with the crown of that fossil might be found in *Plagiaulax medius* (Owen), but no one has yet affirmed that the roots of the tooth are divided in that genus.

It was from considerations of this kind that I judged, when originally comparing the specimen with the teeth of Purbeck Mammalia, that there was no sufficient ground for discussing the question of it being possibly mammalian. And now, having figured the evidence for such a comparison, it must be left to future discovery to determine whether the tooth, which has the mammalian character of two roots, can be identified as a Mammal, or whether it must still be regarded as an abnormal form of a tooth of *Nuthetes destructor*. If the evidence for the double-rooted canine in the Purbeck mammals remains no stronger than I have recorded, then the weight of evidence is against the suggested mammalian interpretation; but the resemblance in the form of the crown in these two types of teeth is sufficient to make further evidence desirable of the root character in those mammals, before the tooth which has hitherto passed unchallenged as *Nuthetes* is accepted unreservedly as a reptile-tooth which has abnormally developed a divided root.